



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,048	08/24/2001	Takashi Katayama	YAMAP0775US	1726
7590	05/03/2005		EXAMINER	
Neil A. DuChez Renner, Otto, Boisselle, & Sklar, L.L.P. 1621 Euclid Avenue, 19th Floor Cleveland, OH 44115			FLANDERS, ANDREW C	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/939,048	KATAYAMA ET AL.	
	Examiner	Art Unit	
	Andrew C Flanders	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11 April 2005.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) 8-17, 19, 21 and 23 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-7, 18, 20 and 22 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 24 August 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant has elected Species I of the previous office action dated 11 March 2005. Claims 1 – 7, 18, 20 and 22 will be examined on the merits.

Claim Rejections - 35 USC § 112

2. **Claims 1, 18, 20, and 22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **Claims 1, 18, 20, and 22**, the phrase “excluding the digital audio signal of the specified channel” is unclear to the examiner. Examiner points to page 21 lines 31 - 32 and page 22 lines 1 – 7 and applicant’s figure 1 elements 32’, 7, 70, 42 and 70’ to ascertain the meaning of the said phrase. It appears as though applicant intends to convert the signal that is added to the LFE to the analog domain rather than the exclusion of the conversion of the signal. For the purpose of expediting prosecution, the phrase will be understood in that manner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1 - 7, 18, 20 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuya (Japanese Patent Application Publication 10-210600) of which U.S. Patent 6,381,333 is relied upon as a translation.

Regarding **Claims 1, 18, 20 and 22**, Tatsuya discloses an LFE channel (fig. 2) (i.e. a digital audio signal of a low frequency effect channel), left (L), right (R), center (C), left surround (LS), and right surround (RS) digital audio channels (Fig. 2) (i.e. and digital audio signals of first through n'th ($n \geq 2$) channels), an adder that adds the L, R, C, LS, RS signals to the LFE channel (fig. 2 element 11A) (i.e. an adder section for adding the digital audio signal of the low frequency effect channel and the digital audio signal of a specified channel among the first through n'th channels, so as to generate an addition signal), multiple digital to analog converters (fig. 2) (i.e. an n number of D/A conversion sections for converting the digital audio signals of the first through n'th channels) a digital to analog converter for the LFE addition signal (fig. 2 element 13If) (i.e. excluding the digital audio signal of the specified channel, and the addition signal into n types of analog audio signals), a low pass filter for filtering the addition signal (fig. 2) (i.e. a first signal processing section for performing a first signal processing process so as to generate an audio signal of the low frequency effect channel), high pass filters in parallel with an all pass switch (fig. 2) (i.e. a second signal processing section for performing a second signal processing process so as to generate an analog audio signal of the specified channel). Tatsuya does not disclose the signal processing sections performing the process on the analog audio signal obtained as a result of D/A

conversion. However, it would have been obvious to one of ordinary skill in the art to filter the signal after the D/A conversion. It is notoriously well known in the art that filtering either before the conversion in the digital domain or after the conversion in the analog domain will result in the same processed signal. As such, the shifting of the elements would cause the invention to function the same and thus is not patentably distinct. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). Furthermore, Tatsuya does not explicitly disclose a decoder for decoding a stream signal wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions in the figure 2 embodiment of the disclosed invention. However, Tatsuya discloses decoders for converting signals recorded in the discrete digital multi channel format into ordinary signals are available (col. 1 lines 20 – 22) and in the discrete multi-channel system there are five independent channels with frequency bands form 20 Hz to 20 kHz, and one channel exclusive to low frequencies up to 120 Hz (col. 1 30 – 35) (i.e. disclose a decoder for decoding a stream signal wherein the stream signal includes information of a low frequency effect channel, the information containing a low frequency component, and also includes information of the first through n'th channels, the information containing components of all frequency bands, the first through n'th channels having different sound source positions). Using this decoder is an obvious addition of the figure 2 embodiment. Tatsuya's entire purpose of the disclosed invention is to operate

on signals decoded in this manner (see Background of The Invention). Therefore, adding the decoder does not require the exercise of inventive skill and is an obvious addition.

Regarding **Claim 2**, in addition to the elements stated above regarding claim 1, Tatsuya discloses a multiplier that multiples the LFE signal (fig. 2 element 10LF) (i.e. further comprising a multiplication section for adjusting the amplitude of the digital audio signal of the low frequency effect channel generated by the decoder).

Regarding **Claim 3**, in addition to the elements stated above regarding claim 1, Tatsuya discloses various multipliers that multiply the signals that are to be added (fig. 2 elements 10L, 10R, 10RS, 10LS and 10C) (i.e. further comprising a multiplication section for adjusting an amplitude of the digital audio signal of the specified channel generated by the decoder).

Regarding **Claim 4**, in addition to the elements stated above regarding claim 1, Tatsuya discloses a low pass filter for filtering the addition signal (fig. 2) (i.e. wherein the first signal processing process is a low pass filtering process).

Regarding **Claim 5**, in addition to the elements stated above regarding claim 1, high pass filters in parallel with an all pass switch (fig. 2) (i.e. wherein the second signal processing process is one of a high pass filtering process or an all pass filtering process).

Regarding **Claim 6**, in addition to the elements stated above regarding claim 5, high pass filters in parallel with an all pass switch (fig. 2) (i.e. wherein the second signal processing section includes a switching section for selecting one of the high pass

filtering process and the all pass filtering process), n switches are provided to respective channels for selecting between audio signals of the channels after low frequency signals are cut off by the HPFs and audio signals containing low frequency signal components (col. 8 lines 50 – 55) (i.e. wherein the all pass filtering process is selected when a low frequency analog audio signal is output from the second signal processing section, and the high pass filtering process is selected when the low frequency analog audio signal is not out from the second signal processing section).

Regarding **Claim 7**, in addition to the elements stated above regarding claim 1, Tatsuya discloses 5 digital audio channels (col. 8 lines 45 – 50) and in the discrete multi channel system there are five independent channels and a low frequency channel (col. 1 lines 30 – 35) (i.e. wherein n is 5, and the stream signal contains information of 5.1 channels).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Tanaka (U.S. 6,757,659), Mouri (U.S. 6,052, 470), and Iwamatsu (U.S. 5,727,0667).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

acf

SINH TRAN
BY PATENT EXAMINER

SINH TRAN
REVISORY PATENT EXAMINER